

Claims

We claim:

1. A blood substitute composition comprising surface-modified hemoglobin and an aqueous diluent, wherein said aqueous diluent is at least 40% plasma.

5 2. The blood substitute composition of claim 1, wherein the plasma is derived from a natural source.

3. The blood substitute composition of claim 1, wherein the plasma is derived from the same animal species as the hemoglobin.

10 4. The blood substitute composition of claim 1, wherein the plasma is autologous plasma.

5. The blood substitute composition of claim 1, wherein the surface-modified hemoglobin further comprises at least one polyalkylene oxide molecule covalently attached thereto.

15 6. The blood substitute composition of claim 5, wherein the polyalkylene oxide is polyethylene glycol according to the formula of  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , where  $n$  is greater than or equal to 4.

20 7. The blood substitute composition of claim 5, wherein the hemoglobin concentration is less than 4g/dl.

8. The blood substitute compositions of claim 4, wherein the surface modified hemoglobin has a P50 less than native stroma-free hemoglobin from the same animal source when measured under the same conditions.

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